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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

BRAUN GmbH,

Plaintiff,

v.

RAYOVAC CORPORATION,

Defendant.

Civil Action No. 03-CV-12428-WGY

THIRD REPORT OF SAMIR NAYFEH

Dated: June 27, 2005

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I. INTRODUCTION

I am an Assistant Professor of Mechanical Engineering at the Massachusetts Institute of Technology in Cambridge, Massachusetts. I previously submitted two reports – the first dated May 23, 2005 (“First Nayfeh Report”) and the second dated June 13, 2005 (“Second Nayfeh Report”) – in connection with the above captioned litigation. A copy of my curriculum vitae was attached to the First Nayfeh Report.

I was asked by Braun GmbH (“Braun”) to review the Second Expert Report of Samuel R. Phillips, PE, dated June 13, 2005, and to opine as to the bases set forth in Mr. Phillips’ report upon which he purports to rely in support his conclusion that two patents – U.S. Patent No. 5,711,328 (the “’328 Patent”) and U.S. Patent No. 5,649,556 (the “’556 Patent”), which I understand to be owned by Braun – are not infringed by the Rayovac’s products that I discussed in the First Nayfeh Report.

These Rayovac products include two “Titanium Smart System” electric shaving systems: a men’s rotary system with product designation R-9500 (the “R-9500 cleaning system”) and a men’s foil system with product designation MS-5500 (the “MS-5500 cleaning system”);¹ and one “Smooth & Silky Titanium System”, which is a women’s foil system with product designation WDF-7000CS (the “WDF-7000CS cleaning system”). Each of these Rayovac products includes an electric shaver and a cleaning system.

In order to arrive at my opinion, I have again reviewed the ’328 Patent and the ’556 Patent. I have also reviewed the patent prosecution histories for each of these patents.

In addition, I have again examined the Rayovac products. I have also examined a Braun product with product designation “Syncro Smart System” as well as the website of the Activator product sold by Braun.

Also, I have reviewed Mr. Phillips’ Second Report and the tabs and exhibits thereto. Further, I have reviewed the transcript from the March 15, 2005 *Markman* hearing. Finally, I have examined the transcript of the deposition of James Chasen, as well as those portions of the transcript of the deposition of Alan Schoepp referenced by Mr. Phillips in his Second Report.

II. OPINION SUMMARY

I disagree with Mr. Phillips’ conclusion that the Rayovac products do not infringe claims 11, 12, 14, and 18 of the ’328 Patent and claims 1, 6, and 18 of the ’556 Patent. Moreover, I have seen nothing to indicate that Rayovac has developed a non-infringing

¹ I understand that Rayovac sells another men’s foil shaver cleaning system with product designation MS-5700. I further understand that this MS-5700 cleaning system differs from the MS-5500 cleaning system only with respect to certain details of the electric shaver, which do not affect the cleaning operation and that the MS-5700 cleaning system is identical in all material respects to the MS-5500 cleaning system. Therefore, my opinion with regard to the MS-5700 cleaning system is the same as my opinion with regard to the MS-5500 cleaning system.

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alternative to these products. I understand that Rayovac introduced its first infringing cleaning system (the R-9500 cleaning system) in the Fall of 2003. I have seen nothing to indicate that any of the so-called alternatives presented by Mr. Phillips in his Second Report were available at that time.

III. MR. PHILLIPS’ PROPOSED MODIFICATION OF THE COURT’S CONSTRUCTION FOR THE “CRADLE STRUCTURE” ELEMENT OF EACH OF THE ASSERTED CLAIMS OF THE ’328 AND ’556 PATENTS IS INCORRECT

The Court has construed the following elements:

- a cradle structure adapted to receive a shaving head of a shaving apparatus
- a cradle structure adapted to receive therein the shaving head

of the asserted claims of the ’328 Patent and the ’556 Patent, respectively, as a structure adapted to support or receive a shaving head of a shaving apparatus and able to receive or retain fluid or both. Mr. Phillips asserts that the Court should modify its claim construction to require that the cradle structure “receive and retain fluid” because (according to Mr. Phillips) the written description of the patents-in-suit is “is only for a cleaning system in which a shaver head is immersed in a bath.” Phillips Second Report ¶27-28.

For the reasons set forth in the Second Nayfeh Report, I disagree that the written description is so limited. See Nayfeh Second Report at 26-27. And, therefore, I disagree with Mr. Phillips’ proposed modification of the Court’s construction of these elements of the asserted claims.

IV. COMPARISON OF CLAIMS AND RAYOVAC PRODUCTS

THE ’328 PATENT

Claim 11

Mr. Phillips asserts that the Rayovac cleaning systems do not infringe claim 11 of the ’328 Patent. He does not, however, dispute that each of the Rayovac cleaning systems has:

- “a cleaning fluid container,”
- a “cradle structure being arranged above a fluid level of the cleaning fluid in said cleaning fluid container during the feeding of said cleaning fluid to said cradle structure,” and
- “a drying device.”

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Instead, Mr. Phillips limits his analysis to two elements of claim 11. He argues that the Rayovac products do not contain:

- “a cradle structure adapted to receive a shaving head of a shaving apparatus,” and
- “a feed device for feeding cleaning fluid from said cleaning fluid container to said cradle structure.”

I disagree.

Element: “Cradle Structure Adapted To Receive A Shaving Head Of A Shaving Apparatus”

In the First Nayfeh Report, I explained that each Rayovac cleaning system has “a cradle structure adapted to receive a shaving head of a shaving apparatus.” As discussed above, the Court has construed this element to be a structure adapted to support or receive a shaving head of a shaving apparatus and able to receive or retain fluid or both. Referring to photographs attached as Exhibits B, C, and D to the First Nayfeh Report, I noted that the manifold 3a, ports 3b, and supporting structures 3c² of the Rayovac cleaning systems together constitute the cradle structure.

Mr. Phillips argues that it is only the exterior surfaces of the ports 3b and the supporting structures 3c that support the shaver, and that these surfaces do not receive or retain cleaning fluid. See Phillips Second Report at ¶¶33, 66. Mr. Phillips' observation is not sound. It is clear to one of ordinary skill in the art that a “structure adapted to support or receive a shaving head” includes not only the “surfaces” of that structure that make direct contact with the shaving head, but also the entire structure that supports the shaving head. In this particular case, the ports 3b are integrally formed with the manifold 3a. Together with supporting structures 3c, these features all support the shaver head. Therefore, one of ordinary skill in the art would recognize that the manifold 3a, injection ports 3b, and supporting structures 3c together constitute “a structure adapted to support or receive a shaving head of a shaving apparatus.”

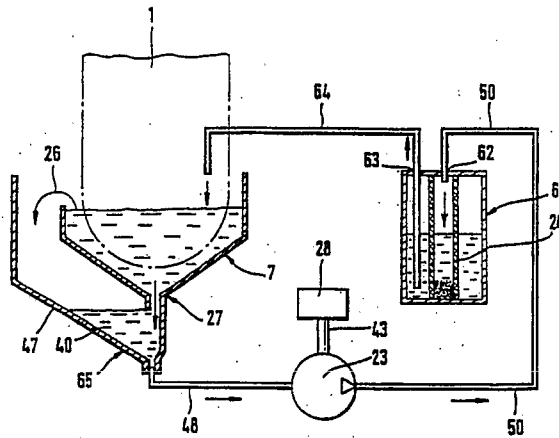
Moreover, during the cleaning operation, the feed device of each of the Rayovac cleaning systems feeds cleaning fluid to the manifold 3a and thereby to the ports 3b. Thus, the “structure adapted to support or receive a shaving head” is also “able to receive or retain fluid or both.”

Mr. Phillips next argues that the manifold 3a “operate as the ‘conduits 64’” of Figure 6 of the patents-in-suit (which is reproduced below) and therefore is not part of the cradle

² Unless otherwise noted, I use the labels from the First Nayfeh Report when referring to features of the accused devices.

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Fig. 6



structure because Mr. Braun, one of the inventors, testified that conduit 64 was not part of what he considered to be the cradle structure. Phillips Second Report ¶34. I disagree.

To begin, Mr. Phillips misreads Mr. Braun's testimony. In particular, Mr. Braun was asked whether conduit 64 is part of the cradle structure, and he responded "Yes, this is just how the principle works." See Phillips First Report, Ex. 16 at pp. 72-73.

More importantly, however, unlike conduit 64 of Figure 6 of the patents-in-suit, the manifold 3a in Rayovac's cleaning systems supports the shaver head. One of ordinary skill in the art therefore would recognize that it forms a part of the claimed cradle structure, while conduit 64 (which does not support the shaving head) does not.

Therefore, manifold 3a, ports 3b, and supporting structures 3c of the Rayovac cleaning systems together constitute the cradle structure as claimed in claim 11.

Element: "A Feed Device For Feeding Cleaning Fluid From Said Cleaning Fluid Container To Said Cradle Structure"

In the First Nayfeh Report, I explained that the cleaning device of each Rayovac cleaning system has "a feed device for feeding cleaning fluid from said cleaning fluid container to said cradle structure." The Court has construed this element to be a mechanism that feeds cleaning fluid from the cleaning fluid container to the cradle structure. Referring to photographs attached as Exhibits B, C, and D to the First Nayfeh Report, I noted that pump 6 and conduit 7 of the Rayovac products feed fluid to the manifold 3a and ports 3b of the cradle structure during the cleaning operation.

Mr. Phillips apparently does not disagree that pump 6 and conduit 7 feed fluid to the manifold 3a and ports 3b. Instead, he argues that the Rayovac cleaning systems do not contain this claim element because the Rayovac products do not have a "cradle structure"

and fluid is not “fed” to supporting structures 3c. See Phillips Second Report ¶¶47, 69-70. I disagree.

For the reasons set forth above in connection with my discussion of the cradle structure element of claim 11, I disagree with Mr. Phillips’ conclusion that the Rayovac products do not have a cradle structure. In particular, manifold 3a, ports 3b, and supporting surfaces 3c constitute the cradle structure of the Rayovac products.

Moreover, as Mr. Phillips implicitly acknowledges, in each of the Rayovac products, fluid is fed by pump 6 via conduit 7 to the manifold 3a and ports 3b. Therefore, these products contain the requisite feed device element of claim 11.

Therefore, the Rayovac products each infringe claim 11 of the ’328 patent.

Claim 12

Claim 12 of the ’328 Patent adds one limitation to claim 11: that the drying device comprises an impeller.

For the reasons set forth in connection with his discussion of claim 11 of the ’328 Patent, Mr. Phillips asserts that the Rayovac cleaning systems do not infringe claim 12. See Phillips Second Report ¶72. Because I disagree with Mr. Phillips’ analysis in connection with claim 11, I disagree with Mr. Phillips’ conclusion with regard to claim 12.

Claim 14

Claim 14 of the ’328 Patent is identical to claim 11 except that claim 14 includes the limitation that the cradle structure 3a, 3b, and 3c be permanently open to atmosphere and does not require that the cleaning system include a drying device.

For the reasons set forth in connection with his discussion of claim 11 of the ’328 Patent, Mr. Phillips asserts that the Rayovac cleaning systems do not infringe claim 14. Because I disagree with Mr. Phillips’ analysis in connection with claim 11, I disagree with Mr. Phillips’ conclusion with regard to claim 14.

Element: “Said Cradle Structure Being Permanently Open To Atmosphere”

In addition to the foregoing, Mr. Phillips argues that the Rayovac products do not have a cradle structure permanently open to atmosphere because (according to Mr. Phillips) the manifold 3a and its ports 3b become closed to the atmosphere when the shaving head is inserted into the cradle structure. See Phillips Second Report ¶75. I disagree.

The Court construed this element to require that the cradle structure be permanently open to air. As explained in the specification of the ’328 patent:

It is a still further advantage that the cradle is arranged outside the cleaning fluid and/or above the fluid level of the cleaning fluid held in the cleaning fluid container,

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and that at least the cradle and/or the cleaning fluid are permanently open towards the outside, that is, to atmosphere. This enables the shaving apparatus to be inserted in the cradle without any effort and to be withdrawn therefrom without the need to utilize any parts closing the cradle.

'328 Patent, col. 2, lines 44-51. In the case of the Rayovac products, the cradle structure 3a, 3b, and 3c is permanently open to the atmosphere. As in the case of the preferred embodiment of the '328 Patent, the shaver 1 is easily inserted in the cradle structure 3a, 3b, and 3c and removable therefrom. No elaborate seal is provided.

Claim 18

Claim 18 of the '328 Patent is identical to claim 11 except that claim 18 includes the limitation that the cleaning system include a bracket for insertion of the shaver, and does not require that it include a dryer.

For the reasons set forth in connection with his discussion of claim 11 of the '328 Patent, Mr. Phillips asserts that the Rayovac cleaning systems do not infringe claim 18. See Phillips Second Report ¶78. Because I disagree with Mr. Phillips' analysis in connection with claim 11, I disagree with Mr. Phillips' conclusion with regard to claim 18.

THE '556 PATENTClaim 1

Mr. Phillips asserts that the Rayovac cleaning systems do not infringe claim 1 of the '556 Patent. Although he does not dispute that each of the Rayovac cleaning systems is "a cleaning device for cleaning a shaving head of a dry shaving apparatus" and that each has "a filter," Mr. Phillips asserts that the Rayovac products do not contain the following four elements of claim 1:

- "a cradle structure adapted to receive therein the shaving head,"
- "a cleaning fluid container separate from the cradle structure for holding a cleaning fluid,"
- "a fluid feed mechanism which feeds the cleaning fluid after it passes through the filter to the cradle structure during cleaning," and
- "said container and filter being separable from the cradle structure as a unit."

I disagree.

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Element: “A Cradle Structure Adapted To Receive Therein The Shaving Head”

In the First Nayfeh Report, I explained that each Rayovac cleaning system has “a cradle structure adapted to receive therein the shaving head.” The Court has construed this element to mean the same as the “cradle structure adapted to receive a shaving head of a shaving apparatus” element of claim 11 of the ’328 Patent. In particular, the Court has construed this element to be a structure adapted to support or receive a shaving head of a shaving apparatus and able to receive or retain fluid or both. Referring to photographs attached as Exhibits B, C, and D to the First Nayfeh Report, I noted that the manifold 3a, ports 3b, and supporting structures 3c of the Rayovac cleaning systems together constitute the cradle structure.

Mr. Phillips asserts that these structures do not constitute a cradle structure for reasons that mirror those set forth in connection with the discussion of the cradle structure element of claim 11 of the ’328 Patent. See Phillips Second Report ¶¶27-35. Therefore, for the reasons set for above in connection with the discussion of the cradle structure element of claim 11 of the ’328 Patent, I disagree.

Element: “A Cleaning Fluid Container Separate From The Cradle Structure For Holding A Cleaning Fluid”

In the First Nayfeh Report, I explained that each Rayovac cleaning system has “a cleaning fluid container separate from the cradle structure for holding a cleaning fluid.” The Court has construed this element to be a separate cleaning fluid container that is a removable cartridge which holds cleaning fluid.

Mr. Phillips argues that the Rayovac devices do not contain this element of claim 1 because “[p]ouring fluid into a non-replaceable cartridge is very different from a removable cartridge that holds cleaning fluid.” Phillips Second Report ¶38. I disagree.

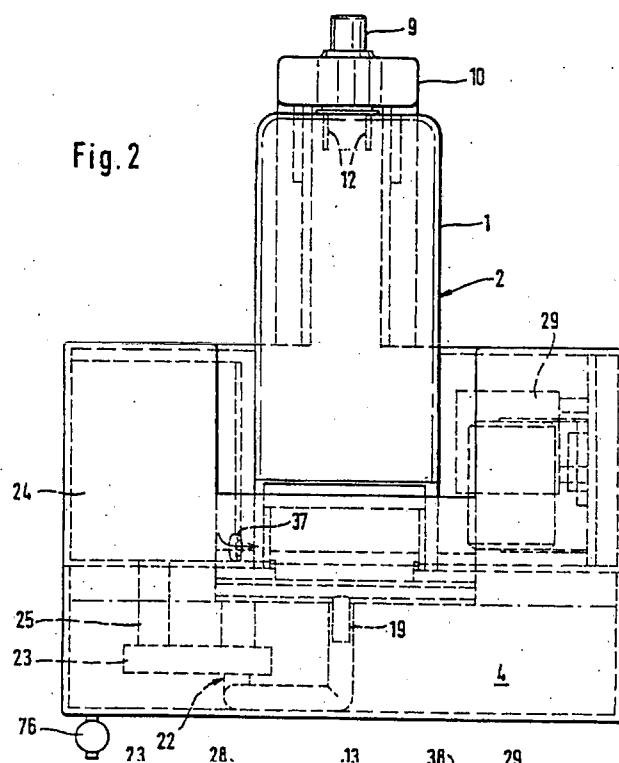
In particular, one of ordinary skill in the art would understand that a cartridge is a case or container that holds a substance, device, or material which is difficult, troublesome, or awkward to handle and that usually can be easily changed. As I explained in the First Nayfeh Report, container 5 of the Rayovac products (i) holds cleaning fluid, (ii) is easily removed from the housing 2 and refilled with cleaning fluid when needed, and (iii) is distinct or separate from the cradle structure 3a, 3b, and 3c.

Mr. Phillips also argues that “[a]t best, the reservoir in Rayovac’s . . . products functions like the ‘collecting reservoir’ 65 in Figure 2 of the ’556 [P]atent.” Phillips Second Report ¶38. I disagree.

As shown in Figure 2 (reproduced below), collecting reservoir 65 (unlabelled rectangular region indicated by dashed lines in lower portion of Figure 2) is not a container for holding cleaning fluid that is removable from the cleaning device. Instead, it appears to be fixed to the cleaning device.

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Moreover, collecting reservoir 65 and filter 24 are not, as a unit, separable from the cradle structure. In contrast, the container 5 of the Rayovac products is removable from the cleaning device and, together with the filter, is removable from the cradle structure.



Also, it is clear from the specification that collecting reservoir 65 is not a container for holding cleaning fluid; instead it is designed to pass the fluid to the filter. In particular, the specification states: "The capacity of the collecting reservoir is substantially smaller compared with the capacity of the cleaning fluid container 61 of Fig. 7." See '328 Patent at col. 4, lines 49-51. The specification further teaches that this reservoir be configured so that hair particles remain agitated therein and fed to the filter rather than being allowed to settle at the bottom of the reservoir. See '328 Patent at col. 7, line 65 to col. 8, line 13. Therefore, unlike the cleaning fluid containers in the accused devices, the collecting reservoir is not a cleaning fluid container for holding a cleaning fluid.

Finally, Mr. Phillips' analogy to ammunition cartridges as commonly used in firearms, see Phillips Second Report at ¶39, supports the conclusion that container 5 of the Rayovac products is a cartridge. These ammunition cartridges typically consist of a tube (the casing) that contains what would otherwise be the separate elements of the projectile, powder, and primer. Use of a cartridge makes it much easier to handle these elements and change them as a unit. Many operators of firearms reload cartridges by pouring powder (and assembling projectile and powder) into spent cartridges. Such a use is similar to Rayovac's products, which provides a container cartridge into which the operator can pour additional cleaning fluid.

Therefore, the Rayovac products include the requisite cleaning fluid container.

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Element: “A Fluid Feed Mechanism Which Feeds The Cleaning Fluid After It Passes Through The Filter To The Cradle Structure During Cleaning”

In the First Nayfeh Report, I explained that each Rayovac cleaning system has “a fluid feed mechanism which feeds the cleaning fluid after it passes through the filter to the cradle structure during cleaning.” In the Rayovac products, pump 6 draws fluid from the container 5 after it passes through the filter 12, pumping it via the conduit 7 to the cradle structure manifold 3a and ports 3b during the cleaning operation.

Mr. Phillips does not disagree. Instead, he argues that the claim limitation is not met because parties have purportedly agreed to construe this element to be a mechanism that feeds cleaning fluid from the cleaning fluid container to the cradle structure after it passes through the filter (from the pump to the filter and then to the cradle). As I explained in the First Nayfeh Report, I do not consider the particular order of fluid flow to be limited by the claim. Though the inventors’ preferred embodiment depicts a certain fluid flow (wherein the cleaning fluid flows from the pump to the filter and then to the cradle), one of ordinary skill in the art would not consider the claim itself to impose a limitation on the particular order of fluid flow. Nor would it be proper to import such a limitation simply because it is found in the preferred embodiment. To the extent that Mr. Phillips (see Phillips Second Report ¶¶42-46), the parties, or the Court read into this element a particular order of fluid flow limitation, I disagree.

Mr. Phillips next argues, as he does in connection with his discussion of claim 11 of the ’328 Patent, that the Rayovac cleaning systems do not contain this claim element because the Rayovac products do not have a “cradle structure” and fluid is not “fed” to supporting structures 3c. See Phillips Second Report ¶¶47. For the reasons set forth above in connection with my discussion of the fed device element of claim 11 of the ’328 Patent, I disagree.

As Mr. Phillips implicitly acknowledges, in each of the Rayovac products, fluid is fed from the container 5, after it passes through filter 12, by pump 6 via conduit 7 to the manifold 3a and ports 3b. Therefore, these products contain the requisite feed device element of claim 1.

Element: “Said Container And Filter Being Separable From The Cradle Structure As A Unit”

In the First Nayfeh Report, I explained that each Rayovac cleaning system has a “container and filter being separable from the cradle structure as a unit.” The Court has construed this element to require that the container and filter are integrally formed or assembled as a unit, such unit being removable from the cleaning device. In the Rayovac products, the filter 12 and container 5 are assembled as a unit in that filter 12 is assembled to the container 5. When the container 5 is removed from the housing 2, both the filter 12 and container 5 are separated from the cleaning device together as a unit.

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Mr. Phillips first argues that the Rayovac products do not have a “cartridge.” See Phillips Second Report ¶49. For the reasons set forth above in connection with my discussion of the “a cleaning fluid container separate from the cradle structure for holding a cleaning fluid” element of claim 1 of the ’556 Patent, I disagree.

Mr. Phillips next argues that in the Rayovac products, the filter 12 and the container 5 are not integrally formed. See Phillips Second Report ¶50. Mr. Phillips, however, does not dispute that the filter 12 and container 5 are assembled as a unit, as required by the claim construction.

Mr. Phillips next argues that in the Rayovac products, there is no cleaning device without the cleaning fluid container 5. See Phillips Second Report ¶¶51-53. Although it is not entirely clear, Mr. Phillips’ argument is apparently that the container 5 in the Rayovac cleaning systems does not meet this claim limitation because it also serves a physical support and cosmetic function for the cleaning system. See *id.* I disagree. There is no requirement in either the claim language or the Court’s construction that the container serve no functions other than those mentioned. And of course, one would not expect any cleaning system to be useable with the container separated from the cleaning device.

Claim 6

Claim 6 of the ’556 Patent is identical to claim 1 except that it includes the further limitation that the container include ports through which cleaning fluid pass in and out of the cleaning fluid container.

Element: “The Cleaning Fluid Container Includes Ports Through Which The Cleaning Fluid Passes In And Out Of The Cleaning Fluid Container”

As I explained in the First Nayfeh Report, in the Rayovac products, the cleaning fluid container 5 includes ports 13 and 15 through which the cleaning fluid passes in and out of the cleaning fluid container

Mr. Phillips argues that the openings that I labeled 13 and 15 in the First Nayfeh Report are not ports. See Phillips Second Report at ¶60-61. I disagree. One of ordinary skill in the art would recognize that a port is an opening for intake or exhaust of a fluid. Despite Mr. Phillips’ assertions to the contrary, the fact that a pump housing is inserted through port 15 to draw fluid through opening 15 (see Phillips Second Report ¶61) does not alter the fact that it is an opening through which fluid leaves the container. Therefore, opening 15 is a port. Similarly, opening 13 is a port because it is an opening through which the fluid enters the container.

Moreover, contrary to Mr. Phillips’ assertion, the fact that the inlet port 13 is an inlet to the filter (see Phillips Second Report ¶60) does not render it outside the claim limitation. As discussed above, filter 12 and container 5 are assembled as a unit, and as in the preferred embodiment of the ’556 patent, fluid passes through an inlet port (labeled 62 in

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Figures 6 and 7 of the patent) into the filter and thereby into the assembled unit comprising filter and cleaning fluid container.

Claim 18

Claim 18 of the ’556 Patent is identical to claim 1 except that it includes the further limitation that the cradle structure be open to the atmosphere and supplied with cleaning fluid from cleaning fluid container by means of the fluid feed mechanism.

Mr. Phillips argues that Rayovac’s systems do not infringe on claim 18 because claim 18 depends on claim 1. See Phillips Second Report ¶63. For the reasons set forth above in connection with my discussion of claim 1, I disagree.

V. PURPORTEDLY NON-INFRINGEMENT ALTERNATIVES**A. GAS CLEANING SYSTEMS**

Mr. Phillips asserts that Rayovac has developed two “gas cleaning” systems that are acceptable non-infringing substitutes for the patents-in-suit. See Phillips Second Report ¶¶81-83. Mr. Phillips purports to base his conclusion on (i) review of photographs and other materials of these gas cleaning systems, see id. at Ex. 37, (ii) conversations with James Chasen, the engineer who allegedly developed these gas cleaning systems, and (iii) the time it took Rayovac to introduce its foil cleaning system after its mechanical design was complete. See id. Though I have not had a conversation with Mr. Chasen, I have reviewed his deposition transcript, which I have attached hereto as Exhibit E. Based on his testimony and my review of the documents cited by Mr. Phillips, I disagree that Rayovac has developed gas cleaning systems that are acceptable non-infringing substitutes for their products.

To begin, Mr. Chasen testified that he began developing a type of gas cleaning system in June 2004. See Ex. E, p. 92. I understand that Rayovac launched its first infringing product (the R-9500 cleaning system) in the Fall 2003. Thus, at the time Rayovac began infringing the patents-in-suit, it had not even begun to develop any of its allegedly non-infringing gas cleaners. Indeed, as to one of the documents -- the operating instructions (see Phillips Second Report, Ex. 37 at R010591 - R010592) for a prototype gas-based cleaning system -- Mr. Chasen testified that he “just did this” at the time his deposition was taken on May 5, 2005. See Ex. E, p. 91.

Moreover, there is nothing in the undated photographs and other materials relied on by Mr. Phillips (see Phillips Second Report, Ex. 37) to support his conclusion that the two gas cleaning systems “have proven to be effective in cleaning dirty shaving heads.” See Phillips Second Report ¶82. Even if (as Mr. Phillips suggests) Mr. Chasen, the engineer who developed these products, believes that they are effective cleaners, that is not the test. In particular, Mr. Phillips points to no consumer studies showing that consumers believe that these gas cleaning systems are substitutable for the products that read on the patents-in-suit. Such a study would need, at a minimum, to account for the relative

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cleaning efficacy of the gas cleaners versus the products on the market and the price for the competing products. And there is considerable reason to believe that consumer would not find the gas cleaners to be adequate substitutes for the current products. In particular, the '328 Patent notes that prior art gas cleaners have not been effective in removing sebum and other dirt from shaver heads and require a seal. See '328 Patent at col. 1, lines 9-23; id. at col. 1, lines 61-67. Thus, Mr. Phillips’ mere assertion that the products are substitutes is not enough.

Further, it is not clear that Rayovac has either the know-how or the equipment to bring the gas cleaning systems to market. Mr. Phillips asserts that Rayovac was able to bring its foil cleaning system (the MS-5500 cleaning system) to the market “in a matter of months after the design was complete.” Phillips Second Report ¶83. And, on that basis, he concludes that Rayovac has the ability and know-how to bring the gas cleaners to market. Id. I disagree. First, design and production of the foil cleaning system required only slight modification of the rotary cleaning system, which Rayovac had launched one year earlier. Therefore, it is inappropriate to use the timing of the launch of the foil cleaning system as a basis for predicting the timing of the launch of any Rayovac gas cleaning system it should in the future bring to market.

Second, even Mr. Chasen admits that his prototype gas cleaners are “not a production unit, so it’s a little bit not as user friendly as it could be.” See Ex. E, p. 93. Mr. Chasen further testifies that the gas cleaner system is “a little bit not user friendly, but it was designed to demonstrate to people the principles of this method of cleaning.” Id. at p. 94. Thus, Mr. Phillips’ conclusion that the mechanical design for these systems is “complete” is unsupported even by the engineer who developed them.

In fact, it appears that the design of these gas cleaning systems is far from complete, even one year after their development commenced. The undated documents (see Phillips Second Report, Ex. 37 at R010934-R010938) that Mr. Phillips cites to support his assertion that Rayovac has developed a gas cleaning system that employs a compressor appear to be photographs of a stand-alone compressor in various states of disassembly, not a cleaning system. And the undated documents (see id. at R010599, R010791-R010801) that Mr. Phillips cites to support his assertion that Rayovac has developed a gas cleaning system that employs a carbon dioxide cartridge support only the conclusion that Rayovac has a laboratory test stand for such a system:

- Document R010599, for example, is photograph of a carbon dioxide cartridge, cartridge holder, and valve mechanism. The valve mechanism appears to be a slight modification of that labeled as “Seltzer Mechanism” in document R010593. And the cartridge and cartridge holder appear to be identical to those that accompany the “Seltzer Mechanism” in document R010593.
- Documents R010791-R010793, for example, are photographs of a bench-top apparatus in which a razor sits in a cradle affixed to a plywood board via threaded rods. A number of flexible tubes supply gas to the cradle from a

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commercially available carbon dioxide cartridge and valve (“Ultraflate Plus”) to the shaving head.

- As made clear from the photographs in Documents R010794 and R010798, this apparatus employs fittings attached to the shaving head to couple the flexible tubes to the shaving head.

Thus, the cited documents show only crude laboratory test stands that could not even be called prototype commercial cleaning systems. And it is clear from the photographs and the accompanying instructions, which Mr. Chasen “just did” prior to his May 5, 2005 deposition, that the prototype which he developed is far from the level of refinement required to bring a product to market.

There are several technical challenges that would need to be solved by Rayovac to bring a gas cleaning system to market. For example, the carbon dioxide cartridges do not last very long. Indeed, according to the instructions (see Phillips Second Report, Ex. 37 at R010591 - R010592), the cartridge would last for only two weeks if the shaver is cleaned once every three or four days of use. Such hurdles, coupled with the admission of Mr. Chasen as to the preliminary nature of the Rayovac designs, cast considerable doubt on whether Rayovac has a completed mechanical design.

Therefore, I do not agree with Mr. Phillips conclusion that these two gas cleaning systems are available non-infringing alternatives for the current products.

B. MR. PHILLIPS’ OTHER SYSTEMS

Mr. Phillips next several “substitutes” for Rayovac’s infringing products appear to be a laundry list of modifications (apparently developed by Mr. Phillips and not Rayovac) to Rayovac’s existing products apparently targeted to design around the patents-in-suit. See Phillips Second Report ¶¶84-103. I disagree with Mr. Phillips that consumers would consider any of these modified products substitutes for the current Rayovac products and, given their obviously preliminary nature, that Rayovac has the know-how and equipment currently (or more importantly, at the time it began selling its first infringing device in the Fall of 2003) to make such modifications.

Filter Position Modification

Mr. Phillips’ first proposed modification is to “removably latch the filter to the bottom of . . . housing 2.” See Phillips Second Report ¶86. Mr. Phillips provides no detail of how such a filter would be latched to the housing 2 or what other modifications to the housing or to the cleaning fluid container 5 would need to be made. Nor does Mr. Phillips explain why such a system would be considered by the consumer as a substitute for Rayovac’s current infringing products. In particular, such a filter latching design would be awkward for the consumer. It would involve a messy cleaning fluid replenishment process, since the filter bag (now dirty) would drip fluid on the bathroom counter, rather than remain contained in the cleaning fluid container. Moreover, assembly of the housing 2, now latched to the filter, would be cumbersome. The consumer would need to line up the

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filter bag and ensure that it does not get tangled or pinched during reassembly. Such a product is unlikely to be as successful as the current product in which the filter and container are easily handled with a minimum of manipulation.

Further, Mr. Phillips statement that Rayovac has the know-how, equipment, and materials to make the needed modifications to its cleaning system supported. Indeed, there is no suggestion by Mr. Phillips that Rayovac has even considered such a design, either at present or in the past.

Thus, I do not consider this design to be an available non-infringing alternative.

Passive Drying

Mr. Phillips' next modification is removal of Rayovac's drying device. See Phillips Second Report ¶90. I do not consider this modification to be a substitute for the current Rayovac products because the cleaning cycle would be lengthened. Among the primary concerns of the designers of wet cleaning systems is the total cycle time. For example, Mr. Chasen testified that it was a critical design criterion for Rayovac in developing its current products that the cleaning cycle duration should be less than one-half hour. See Ex. E, p. 62. Thus, the additional time needed to air or drip dry the shaving head was not acceptable to Rayovac at the time it designed its current products. There is no reason to believe, therefore, that it would be acceptable to consumers now.

There is, moreover, no suggestion by Mr. Phillips that Rayovac has considered such a design, either at present or in the past.

Thus, I do not agree with Mr. Phillips that such a system is an available non-infringing alternative.

Induction Heating

Mr. Phillips' next modification is replacement of Rayovac's drying device with a drying device that uses induction heating. See Phillips Second Report ¶95. Mr. Phillips does not explain how such a substitution would be made, he presents no analysis of the complexities involved in making the substitution, and provides no insight on even where the induction heater would be located. Implementation of an induction heating device would require considerable engineering development. It requires placement of an electrical coil to induce magnetic fields in the electrically conducting components of the shaving head as well as a supply of alternating electrical current. There is no evidence that Rayovac has completed any of this engineering development.

Additionally, there is no indication in Mr. Phillips' Second Report that he or anyone at Rayovac has the know-how, equipment, materials, or ability to make the requisite modifications. Indeed, there is no suggestion by Mr. Phillips that Rayovac has considered such a design, either at present or in the past.

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Thus, I do not agree with Mr. Phillips that such a system is an available non-infringing alternative.

Cradle Structure Covers

Mr. Phillips’ next modification is to incorporate a plastic cover (either removable or hinged) to the cradle structure. See Phillips Second Report ¶98. Mr. Phillips asserts without any basis that such modified products are a “non-infringing substitutes” for Rayovac’s current products. Id. at ¶99. I disagree.

In particular, introduction of a cover (hinged or removable) over the cradle structure in Rayovac’s cleaning systems would make the products less appealing to the consumer, a consideration mentioned explicitly by the inventors in both the ’328 and ’556 Patents. For example, the ’328 Patent states that it is an advantage of the claimed invention that the cradle structure be open to the atmosphere, enabling “the shaving apparatus to be inserted in the cradle without any effort and to be withdrawn therefrom without the need to utilize any parts closing the cradle.” See ’328 Patent at col. 2, lines 44-55. Not surprisingly, there is no indication that Rayovac has ever considered a design with such a cover.

Thus, I do not agree with Mr. Phillips that such a system is an available non-infringing alternative.

Bracket Without Vertical Projections

Mr. Phillips suggests that Rayovac could modify its current design to make its cradle structure deeper and thereby eliminate the bracket. See Phillips Second Report at ¶103. Mr. Phillips provides no details of the suggested redesign. Such a redesign involving significant changes to the dimensions of the cradle structure would require considerable engineering effort and new tooling. And it is unclear how Mr. Phillips’s proposed modifications would eliminate the need for a projecting support into which the shaver is inserted.

Thus, I do not agree with Mr. Phillips that such a system is an available non-infringing alternative.

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VI. CONCLUSION

I disagree with Mr. Phillips' conclusion that the asserted claims of the patents-in-suit are not infringed. I further disagree that Rayovac has developed any available non-infringing alternatives.



Samir Nayfeh
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